

Applicant: Nadja EISENMENGER et al.
Docket No. R.305061-1
Preliminary Amdt.

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-17. (Canceled)

18. (New) A fuel injector for injecting fuel into a combustion chamber (23) of an internal combustion engine the injector comprising

a pressure booster (3) having a booster piston (4) which separates a work chamber (5), permanently subjected to fuel via a pressure source (1, 2), from a pressure-relievable differential pressure chamber (6), and

a servo valve (24) actuatable to effect a change in pressure in the differential pressure chamber (6), the servo valve opening or closing a hydraulic connection (21, 39, 42) of the differential pressure chamber (6) to a low-pressure-side return (28),

the servo valve (24) having a servo valve piston (32, 65), which is guided between a control chamber (36) and a first hydraulic chamber (38) and on which an operative hydraulic face (44), constantly urged in the opening direction of the servo valve piston (32) by a system pressure, and a first sealing seat (40), which seals off the servo valve (24) from a low-pressure-side return (28), are embodied.

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19. **(New)** The fuel injector according to claim 18, wherein the control chamber (36) and the first hydraulic chamber (38) are subjected to system pressure via a supply line (29) that originates at the pressure source (1).

20. **(New)** The fuel injector according to claim 19, wherein the control chamber (36) of the servo valve (24) is subjected to system pressure, via a through conduit (33) extending through the servo valve piston (32), from the first hydraulic chamber (38) into which the supply line (29) discharges.

21. **(New)** The fuel injector according to claim 20, wherein the through conduit (33) of the servo valve piston (32) includes an integrated throttle restriction (34).

22. **(New)** The fuel injector according to claim 19, wherein the control chamber (36), via a second supply line portion (57) branching off from the supply line (29), and the first hydraulic chamber (38), via a supply line portion (58) branching off from the supply line (29), are subjected in parallel to system pressure.

23. **(New)** The fuel injector according to claim 22, wherein the first supply line portion (57) comprises a first throttle restriction (34).

24. **(New)** The fuel injector according to claim 18, wherein the servo valve piston (32) comprises a first sealing seat (40), which opens or closes the low-pressure-side return (28),

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and a control edge (41), which separates the first hydraulic chamber (38) from a second hydraulic chamber (39).

25. (New) The fuel injector according to claim 24, wherein the first sealing seat (40) is embodied as a flat seat or a conical seat and closes an outlet control chamber (42) located on the low-pressure side.

26. (New) The fuel injector according to claim 24, wherein the control edge (41) is embodied as a slide sealing edge (43).

27. (New) The fuel injector according to claim 18, wherein the differential pressure chamber (6), which can be pressure-relieved into the low-pressure-side return (28) via the servo valve (24), is hydraulically coupled with a control chamber (12) for an injection valve member (14), which control chamber receives a damping piston (51), and the damping piston (51) includes a throttle restriction (52) which defines the opening speed of the injection valve member, and the control chamber (12) for actuating the injection valve member (14) communicates via a filling line (56) with either the control chamber (12) or one of the hydraulic chambers (5, 6, 9) of the pressure booster (3).

28. (New) The fuel injector according to claim 18, wherein the actuation of the servo valve (24) is effected via a switching valve (30) that connects the control chamber (36) to a return (31).

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29. **(New)** The fuel injector according to claim 18, wherein the servo valve piston (32) comprises a reduced-diameter servo valve piston portion (65), and a prestressed control sleeve (67) received on the reduced diameter servo piston portion.

30. **(New)** The fuel injector according to claim 29, wherein the control sleeve (67) together with the servo valve piston portion (65) forms a slide control edge (69).

31. **(New)** The fuel injector according to claim 30, wherein the slide control edge (69) controls the communication with the low-pressure-side return (28).

32. **(New)** The fuel injector according to claim 29, wherein the servo valve piston portion (65) of the servo valve piston (32) has first recesses (63), each of which includes a slide sealing edge (43) which cooperates with a control edge (41) embodied toward the servo valve housing.

33. **(New)** The fuel injector according to claim 29, further comprising a spring element (68) acting on the control sleeve (67), the spring element (68) being braced against a housing part (26) of the servo valve housing (25).

34. **(New)** The fuel injector according to claim 29, wherein the servo valve piston portion (65) of the servo valve piston (32) comprises first recesses (63) between the first hydraulic

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chamber (38) and the second hydraulic chamber (39) and second recesses (70), the first recesses (63) and second recesses (70) being a slide seal (69).